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CLAIMS

1. A magnetic recording medium comprising a nonmagnetic substrate having applied thereon a magnetic recording layer, in which said substrate has, on a upper surface thereof, in sequence, a crystal orientation-improving layer and a seed layer consisting of a material having a higher surface energy than that of the crystal orientation-improving layer.

2. A magnetic recording medium according to claim 1, in which said nonmagnetic substrate is a substrate of an aluminum-based alloy or a glass substrate.

3. A magnetic recording medium according to claim 1 or 2, in which said seed layer has a thickness of not more than 2 nm, when the thickness is determined assuming that the seed layer has a continuous thickness.

4. A magnetic recording medium according to claim 1 or 2, in which said seed layer is an island-like film consisting of an islandwise distributed and deposited material having a higher surface energy than that of the crystal orientation-improving layer.

5. A magnetic recording medium according to claim 1 or 2, in which said seed layer comprises rhenium.

6. A magnetic recording medium according to claim 1 or 2, in which said crystal orientation-improving layer comprises NiP or CrP.

7. A magnetic recording medium according to claim 1 or 2, which further comprises an underlayer consisting of a chromium-based alloy between the seed layer and the magnetic recording layer.

8. A magnetic recording medium according to claim 1 or 2, which further comprises an adhesion-improving underlayer between the substrate and the crystal orientation-improving layer.

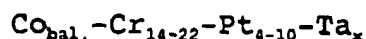
9. A magnetic recording medium according to claim 1 or 2, in which said magnetic recording layer contains cobalt as a principal component thereof and also

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contains, at least, chromium and platinum.

10. A magnetic recording medium according to claim 9, in which said magnetic recording layer further contains tantalum or tantalum and niobium.

11. The magnetic recording medium according to claim 10, in which said magnetic recording layer is constituted from a four-component metal alloy of cobalt, chromium, platinum and tantalum which is represented by the following formula:

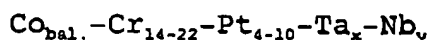


in which

bal. means a balance amount, and

x is a in the range of 1 to 5 at%.

12. The magnetic recording medium according to claim 10, in which said magnetic recording layer is constituted from a five-component metal alloy of cobalt, chromium, platinum, tantalum and niobium which is represented by the following formula:



in which

bal. means a balance amount, and

a sum of x and y ($x + y$) is in the range of 1 to 5 at%.

13. The magnetic recording medium according to claim 1 or 2, which further comprises, applied over said magnetic recording layer, a protective layer consisting of carbon or diamondlike carbon.

14. A magnetic recording medium according to claim 1 or 2, which is in the form of a disk.

15. A process for the production of a magnetic recording medium comprising a nonmagnetic substrate having applied thereon a magnetic recording medium, which comprises the steps of:

providing the nonmagnetic substrate;

depositing a crystal orientation-improving material onto the substrate to form a crystal orientation-improving layer;

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depositing a seeding material having a higher surface energy than the crystal orientation-improving material on the crystal orientation-improving layer, with heating of said substrate, to form an island-like seed layer; and

depositing the magnetic recording layer on the island-like seed layer.

16. A process for the production of a magnetic recording medium according to claim 15, in which said substrate is formed from an aluminum-based alloy or glass.

17. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said substrate is heated to a temperature of not less than 150°C during formation of the island-like seed layer.

18. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said seeding material comprises rhenium.

19. A process for the production of a magnetic recording medium according to claim 15 or 16, in which said crystal orientation-improving material comprises NiP or CrP.

20. A magnetic recording device comprises a recording head section for recording in a magnetic recording medium and a reproducing head section for reproducing information, in which the magnetic recording medium comprises a nonmagnetic substrate having applied thereon a magnetic recording layer, in which said substrate has on a upper surface thereof, in sequence, a crystal orientation-improving layer and a seed layer consisting of a material having a higher surface energy than that of the crystal orientation-improving layer; and said recording head section is provided with a magnetoresistive head.

21. A magnetic recording device according to claim 20, in which said nonmagnetic substrate is a

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substrate of an aluminum-based alloy or a glass substrate.

22. The magnetic recording device according to claim 20 or 21, in which said magnetoresistive head is a MR head, an AMR head or a GMR head.